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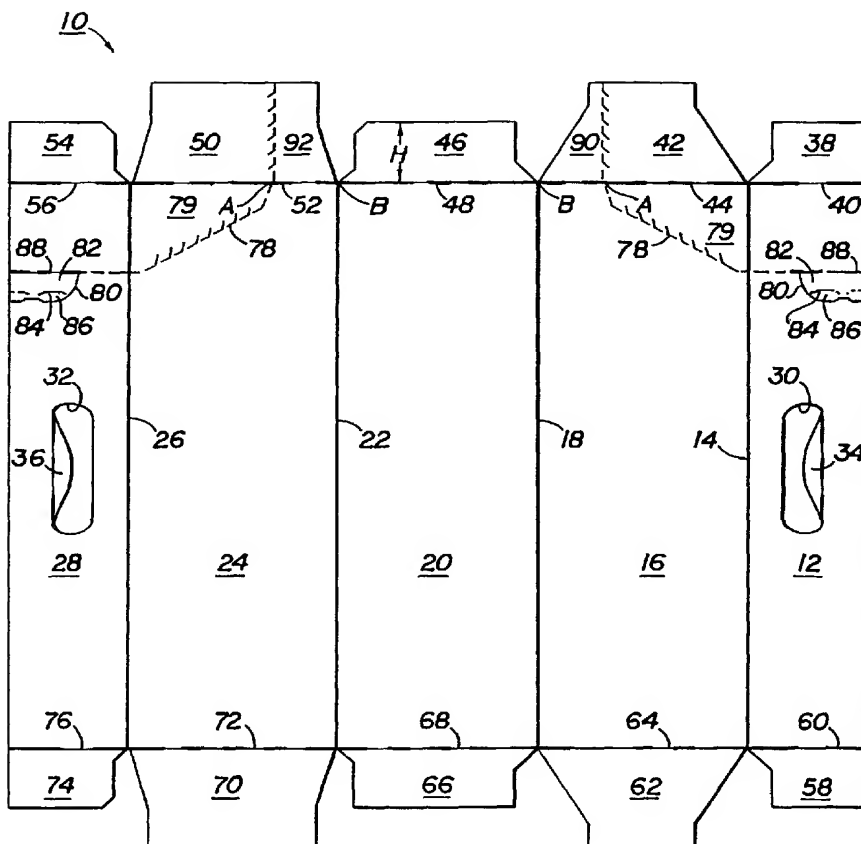
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[Continued on next page]

(54) Title: CARTON WITH IMPROVED DISPENSING FEATURE IN COMBINATION WITH UNIQUE HANDLE



(57) Abstract: A carton with an improved dispenser at one end of the carton which preserves the integrity of the carton when the carton is opened by permitting a bottom end flap attached to the bottom panel to remain in place and also a portion of each side end flap that is adjacent to the bottom end flap. This dispenser may also provide a safety net for the first container that is automatically dispensed when the carton is opened. This carton also has a unique transverse racetrack handle.

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**CARTON WITH AN IMPROVED DISPENSING FEATURE IN COMBINATION
WITH A UNIQUE HANDLE**

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BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates generally to an enclosed paperboard carton capable of enclosing containers, which carton has a unique opening and dispensing feature that allows the containers, for example, cans or bottles, to be removed or dispensed without destroying the overall structural integrity of the carton. The carton also has a transverse racetrack handle. The dispensing feature may also provide a safety net for the first container that is automatically dispensed when the carton is opened. This dispensing feature also permits the carton to be carried from one location to another after the dispenser has been opened without the containers falling out of the carton.

2. Background

Fully enclosed carton capable of enclosing cans have been used in the past that have a feature for dispensing the cans one at a time. Dispenser sections have been provided at various locations within these cartons depending on the design. Many of these dispensers suffer from the disadvantage that once open, they allow all of the containers to roll out. In addition, it is difficult to carry one of these cartons without the containers falling out once the dispenser has been opened. Most of these dispensers have been designed for dispensing cans or bottles which have cylindrical tops and bottoms of substantially the same size and configuration. These dispensers are not suitable for dispensing bottles that have a neck of smaller diameter than the body of the bottle.

In effect, many of these dispensers destroy the overall carton integrity once they have been opened. Many of these dispensing features do not have any means for preventing the first container that is automatically dispensed from falling free from the carton. In other words, its dispensing feature has no safety net.

3. Prior Art

U.S. Patent No. 3,265,283 to Farquhar discloses a fully enclosed carton having a dispenser for dispensing the enclosed cans. The end wall of the carton has a dispensing flap which can be folded down upon opening. An aperture formed by the flap extends into the side walls to permit grasping of the can to withdraw it from the carton. When the flap is opened, the cans are held in the carton by an accurate flap portion extending downwardly in the end wall into the center of the aperture. The structural integrity of this carton is compromised because the entire bottom end of the carton is opened. The dispensing flap does not provide a safety net to prevent a can from rolling out of the carton and falling to the floor. This carton cannot be easily moved from one location to another after the dispenser has been opened without the containers falling out. It will be realized that the design of this carton is not satisfactory for dispensing bottles with necks as the exiting container being dispensed needs to have a corresponding cylindrical top and bottom of approximately the same size to facilitate easy dispensing by a person grasping the ends of the exiting container.

U.S. Patent No. 4,364,509 to Holley, Jr. et al. also discloses a fully enclosed carton with a dispenser in one of the end walls. This dispenser is likewise formed in the end wall by tearing out an end flap and lowering it into proper position. Expansion slits are provided in the side wall for the user's fingers to grasp the ends of the exiting can. This carton is not adapted for use with bottles, because of the necessity of grasping the ends of the container for removal. In addition, it is not adapted for carrying cans once the carton has been opened as they are likely to roll out of the dispenser. There is also no safety net to receive the cans as they are rolled out of the dispenser.

SUMMARY OF THE INVENTION

It is an object of this invention to provide a dispenser that preserves the integrity of the carton after the dispenser has been opened. It is a further object to provide a dispenser that can be used with both cans and bottles. It is another object of this invention to provide a safety net or basket for the containers that are automatically dispensed when the dispenser is opened. It is a still further object of this invention is to develop a dispenser that will permit the carton to be moved from one location to another after it has been opened without discharging containers. Another object of this invention is to provide a dispenser that can be easily opened. The final object of this invention is provide a carton with such dispenser that has

stronger handle than the conventional racetrack handle.

Briefly described, in a preferred form, the objects of this invention are achieved by providing an enclosed carton that has a unique dispenser in the exiting end of the carton. This carton is generally rectangular and has a bottom, a top, two sides, a closed end and an exiting
5 end. The carton is foldably constructed from a blank having panels and flaps. The exiting end or ends of the carton permits containers to be taken from the carton via the dispenser.

This carton has a dispenser that is torn from an end of the carton by tearing an end portion of the top panel, a triangular portion from the adjoining side panels, and all of the side end flaps except the bottom most portions, to form a dispenser. The top end flap is removed
10 when this dispenser is opened. This dispenser may have a semi-circular score line attached to the dispenser score line in the top panel for easy opening of the dispenser. A person's fingers can be inserted between this semi-circular score line and the dispenser to commence the opening of the dispenser. This semi-circular score line is placed so that when it is pushed open, a person's fingers will go between the first and second containers inside of the carton.
15 A score line can be provided that bisects the semi-circular score line parallel to the longitudinal axis of the containers to permit ease of entry of a person's fingers. The bottom portions of the side end flaps are left intact to preserve the structural integrity of the carton and also to provide a wall to prevent an end container in the bottom of the carton from accidentally rolling out.

It should be realized that the dispenser does not have to be totally removed from the carton, as the score lines in the side and top panels can be broken and the dispenser flipped
20 over along the score lines in the side end flaps to form a safety net or basket when the first container in the top of the carton rolls out of the dispenser. If the score line in the side end flaps is not broken, the dispenser can be reclosed. This carton has a unique racetrack handle in the top panel that extends transversely towards the side panel. This handle dramatically
25 increases the strength of the carton when compared to identical cartons with conventional racetrack handles.

This carton can be constructed by gluing, taping, stapling and the like, or by locking. The dispenser of this invention can be put in one end of the carton or in both ends. A
30 dispenser can be torn from the carton and placed under the other end of the carton to elevate it to facilitate the removal of the containers from the carton. These and other objects, features,

and advantages of the present invention will become more apparent upon reading the following specification in conjunction with the accompanying drawing figures.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a plan view of a blank from which a carton according to this invention is formed.

Fig. 2 is a perspective end view of the carton loaded with cans showing the dispenser being partially opened.

Fig. 3 is a perspective end view of the carton containing cans with the basket shaped dispenser open but attached and containing a can.

Fig. 4 is a perspective side view of the carton containing cans showing the top most end can being gripped by hand for removal from the carton.

Fig. 5 is a plan view of the blank from which a carton according to this invention is formed having a single handle opening with the bottoms flaps being designed to be glued together.

Fig. 6 is a perspective end view of the carton loaded with cans showing the dispenser being partially opened and having a transverse racetrack handle.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

The present invention is intended primarily for use with cans and bottles of the types used to contain soft drinks, beer and the like. The blank 10 is formed from a foldable sheet material, such as paperboard. The blank has a top flap 12 which is connected by fold line 14 to side panel 16, which in turn is connected by fold line 18 to bottom panel 20. Bottom panel 20 is connected by fold line 22 to side panel 24, which in turn is connected by fold line 26 to top flap 28.

This carton is capable of containing cans or bottles in two rows of six containers each. As shown in Fig. 1, this carton has a conventional "racetrack" handle 30 and 32 formed in the top flaps, 12 and 28, respectively. Cushioning flaps 34 and 36 are provided for the comfort of a person's hands, and are foldably joined to top flaps 12 and 28. On the exiting end of the carton, top end flap 38 is joined to top flap 12 by fold line 40. Side end flap 42 is joined to side panel 16 by fold line 44. Bottom end flap 46 is joined to bottom panel 20 by fold line 48. Side end flap 50 is joined by fold line 52 to side panel 24. Top end flap 54 is joined to top flap

28 by fold line 56.

On the closed end of the carton, top end flap 58 is connected to top flap 12 by fold line 60, side end flap 62 is connected to side panel 16 by fold line 64, bottom end flap 66 is attached to bottom panel 20 by fold line 68, side end flap 70 is connected to side panel 24 by
5 fold line 72 and top end flap 74 is connected to top flap 28 by fold line 76.

It will be understood by those skilled in the art that the carton of the present invention is generally symmetrical about a horizontal line of bisection, as viewed when Fig. 1 is rotated lengthwise. This symmetry aids in the efficient production of the present carton.

As shown in Fig. 1, in forming this blank 10 into a carton, top flap 12 is glued to top
10 flap 28 forming a sleeve. Thus, the manufacturing joint is formed in the top panel. The cans or bottles are then loaded into the carton on their sides and the various end flaps on both ends are closed. Using one end as an example, top end flaps 38 and 54 are folded downwardly and bottom end flap 46 is folded upwardly and then side end flaps 42 and 50 are folded sideways. These various end flaps are held together by glue or other means. The other end of the carton
15 is glued and closed in the same fashion.

When the blank is folded and glued, the resulting carton has a closed end and an exiting end. However, a dispenser can be placed on both ends of the cartons. The containers exit the carton through the exiting end of the carton. The exiting end of the carton has a tear line 78 that extends through the top flaps 12 and 28, through the side panels 16 and 24 to form
20 a triangular dispensing flap on the dispenser 79 into the side end flaps 42 and 50. In order to facilitate the opening of this dispenser 79, a finger flap 82 may be provided for the easy insertion of the fingers to start the tearing of the dispenser 79. Finger flap 82 is connected to top flaps 12 and 28 by tear line 80. Finger flap 82 may be provided with insertion flap 86 to facilitate entry of the fingers into the carton. For the opening of the dispenser 79, insertion
25 flap 86 is connected to finger flap 82 by fold line 84. Finger flap 82 and insertion flap 86 are connected to the dispenser 79 by fold line 88 which interrupts the tear line 78. It will be noticed that tear line 78 extends into side end flaps 42 and 50 so as to form a substantial bottom portion 90 and 92 so that the end of the carton will have a bottom end when the dispenser 79 is opened.

30 Fig. 2 shows the carton full of cans with the dispenser 79 open except for the tear lines 78 through the side end flaps 42, 50. It will be noted that the dispenser is a unitary structure.

The dispenser 79 is opened by a person inserting his or her fingers into finger flap 82 and pulling the dispenser 79 open. Insertion flap 86 is provided to facilitate the entry of the fingers into the opening provided by finger flap 82. Finger flap 82 and insertion flap 86 are placed so that the fingers will enter the interior of the carton between the first and second cans.

5 Fig. 3 shows the dispenser 79 completely opened but still attached to the carton by tear line 78 not being torn open through side end flaps 42 and 50. When the dispenser 79 is completely opened, the top can C will fall into the basket formed by the dispensing flap 79 and be retained. This dispenser 79 serves as a safety net to prevent the can from leaving the vicinity of the carton. The dispenser 79 forms a basket with triangular flaps forming side
10 walls, side end flaps 42 and 50 forming a bottom wall and the torn off portions of the top flaps 12 and 28 forming an end wall.

In order to maintain the structural integrity of this carton, the bottom portions 90 and 92 of the side end flaps 42 and 50 are not removed from the carton when the dispenser is removed. The structural integrity of the carton is improved by the fact that the bottom end
15 flap 46 is not removed. The bottom end flap 46 has a height H approximately equal to the distance between A and B along fold lines 44 and 52 respectively. This means that the bottom end flap 46 has the same height as the bottom portions 90 and 92 of the side end flaps 42 and 50, thus producing a strong bottom end structure.

If desired, the dispenser 79 can be totally removed from carton or left attached along
20 tear line 78 in side flaps 42 and 50 and reclosed.

As illustrated in Fig. 4, a can C can be easily removed from the carton by using the fingers F and the thumb T of a hand.

Fig. 5 is a plan view of a blank from which a carton containing cans in three rows of four cans each according to the invention is formed. This carton has a single slot handle for
25 carrying. The blank 110 has a bottom flap 112 which is connected by fold line 114 to side panel 116, which in turn is connected by fold line 118 to top panel 120. Top panel 120 in turn is connected by fold line 122 to side panel 124 which in turn is connected by fold line 126 to bottom flap 128. On the closed end of the carton, bottom end flap 130 is foldably connected by fold line 132 to bottom flap 112. Side end flap 134 is connected by fold line 136 to side
30 panel 116. Top end flap 138 is connected by fold line 140 to top panel 120. Side end flap 142 is connected by fold line 144 to side panel 124 and bottom end flap 146 is connected by fold

line 148 to bottom flap 128. The exiting end of the carton has a bottom end flap 150 which is connected to bottom flap 112 by fold line 152. Side end flap 154 is connected by fold line 156 to side panel 116. Top end flap 158 is connected by fold line 160 to top panel 120. Side end flap 162 is connected by fold line 164 to side panel 124. Bottom end flap 166 is connected by
5 fold line 168 to bottom flap 128.

This carton has a slot handle 170 formed by cut line 172 and fold lines 174 and 176. It also has a score line 178 to assist in dissipating the forces involved in lifting a loaded carton.

A dispenser 180 is formed by tearing tear line 182 which extends from the top panel 120 through side panels 116, 124 and into side end flaps 154 and 162. Tear line 182 extends
10 into side end flaps 154 and 162, so as to leave bottom portions 184, 186 that has a height when the carton is formed along lines 156, 164 respectively that is approximately equal to the height of bottom end flaps 150 and 166 in order to provide structural strength to the carton. This carton may have a finger flap 188 connected to dispenser 180 by fold line 190 and insertion flap 192 connected to finger flap 188 by fold line 194. Finger flap 188 and insertion
15 flap 192 are joined to top panel 120 by tear line 196.

A sleeve from this carton is prepared by gluing the bottom flap 112 and 128 in an overlapping relationship. This carton is then loaded in the same manner as the carton shown in Fig. 2 through as the end of the cartons. Side end flaps 134, 142, 154, and 162 are glued over the bottom end flaps 130, 146, 150, 166 and top end flaps 138 and 158 to close the ends of
20 the carton. The dispenser is opened in the same manner as the dispenser shown in Figs. 1 and 2.

Fig. 6 is a perspective view of a carton with the dispenser of this invention and including a unique transverse racetrack handle. This carton is identical to the carton shown in Fig. 1 except for the use of a transverse racetrack handle 230 and 232. Unlike the
25 conventional racetrack handle this handle extends transversely towards each side panel 16. In addition, there are no manufacturing joint in the top panel 260 as shown in Fig. 1. The manufacturing joint of carton shown in Fig 6 is in the bottom panel (not shown).

The dispenser of this invention can be used for both cans and other types of cylindrical containers. It is particularly useful for PET bottles having a stubby configuration.

UNIQUE FEATURES OF THE DISPENSER AND TRANSVERSE HANDLE OF THIS INVENTION

One of the unique features of the dispenser of this invention is that it provides easy
5 access to the cans or bottles in the carton but yet does not greatly diminish the structural
integrity of the carton. This is partly because the bottom end of the end panel in which the
dispenser is located is retained. This accomplished by leaving a bottom portion on the side
end panel that is equal in height to the bottom end flaps.

The dispenser of this invention provides an easy opening feature in that it has a finger
10 flap and insertion flap so that a person's fingers can be inserted between the first and second
can to open the dispenser.

This dispenser also provides a safety net or basket in that if the tear line for the
dispenser is not torn along the side end flaps, it remains attached to the carton and can catch in
its basket a can as it is removed from the carton.

15 A number of cartons were constructed from 18 point paperboard according to the
styles illustrated in Figs. 1 and 6. These cartons were all designed to carry 12-12 ounce cans
and when packed would weigh approximately 10.5 pounds. The cartons are constructed in
accordance with the teachings of Fig. 1 with the conventional racetrack handle while the
cartons constructed in accordance with the teachings of Fig. 6 had a transverse racetrack
20 handle and the manufacturing joint in the bottom of the carton. These cartons were subjected
to centrifugal tests to determine the strength of the handle. The centrifugal force tester, which
spins the carton, suspended from a handle device, is attached to load cell. A digital unit
indicates a pounds of force before failure of the handle. The cartons produced in accordance
with the teachings of Fig. 1 failed at a centrifugal force test of 30.1 pounds while those
25 constructed in accordance with the teachings of Fig. 6 failed at a centrifugal force test of 67.6
pounds. Thus it is clear that the transverse handle results in a much stronger carton. This is
surprising as both the conventional racetrack handle and the transverse racetrack handle are
constructed well within the confines of the top panel. It is thought that the transverse
racetrack handle is stronger because the tear forces in the handle are dissipated into the side
30 panels.

While the invention has been disclosed in its preferred forms, it will be apparent to

those skilled in the art that many modifications, additions, and deletions can be made therein without departing from the spirit and scope of the invention and its equivalents as set forth in the following claims.

What is claimed is:

1. An enclosed carton for carrying a plurality of containers, the carton having two ends, at least one of which is an exiting end capable of permitting containers to exit the carton one at a time, the carton comprising:

5 a. a bottom panel, top panel and foldably attached adjoining side panels;
 b. said exiting end having a bottom end flap with a height and which is attached by a fold line to the bottom panel, a top end flap foldably attached to the top panel, a side end flap foldably attached to each side panel, and means for attaching said flaps together to close the exiting end of the carton;

10 c. said exiting end having a tear line for forming a container dispenser opening, said tear line extending through the top panel at a distance spaced from and generally parallel to the exiting end and extending at an angle through each side panel towards the exiting end to the attachment of said side panel with a side end flap at a distance greater from the top panel than the bottom panel, with a fold line extending through each side end flap at a
15 distance from the bottom panel approximately equal to the height of the bottom end flap, so that when the tear line is torn, a dispenser opening is formed for dispensing the container, with the dispenser remaining attached to the carton by the fold line through each side end flap, so that the bottom end flap and a portion of each side end flap adjacent to the bottom end flap remain attached to the carton to provide structural integrity to the carton, said dispenser
20 forming a basket for catching containers exiting the carton;

 d. means for closing any end of the carton that is not an exiting end; and

 e. a racetrack handle in the top panel extending transversely towards the side panels.

2. The carton of Claim 1 in which the tear line in the top panel extends away from
25 the exiting end for a portion of its extension across the top panel to form a finger flap foldably attached to the dispenser to facilitate commencing opening the dispenser in the top panel between the first and second containers from the exiting end.

3. The carton of Claim 1 in which glue is used to close both ends of the carton.

4. The carton of Claim 1 in which there is only one exiting end.

30 5. The carton of Claim 1 in which both ends are exiting ends.

6. The carton of Claim 1 in which there is a manufacturing joint in the bottom

panel adhered together by glue.

7. An enclosed carton for carrying a plurality of containers, the carton having two ends, at least one of each is an exiting end capable of permitting containers to exit the carton one at a time, the carton comprising:

- 5 a. a bottom panel, top panel and foldably attached adjoining side panels;
- b. said exiting end having a bottom end flap with a height and which is attached by a fold line to the bottom panel, a top end flap foldably attached to the top panel, a side end flap foldably attached to each side panel, and means for attaching said flaps together to close the exiting end of the carton;
- 10 c. said exiting end having a tear line for forming a container dispenser, said tear line extending through the top panel at a distance spaced from and generally parallel to the exiting end and extending at an angle through each side panel towards the exiting end to the attachment of said side panel with a side end flap at a distance greater from the top panel than the bottom panel, said tear line extending through each side end flap at a distance from
15 the bottom panel approximately equal to the height of the bottom end flap so that an opening for dispensing containers is formed when the tear line is torn, said bottom end flap and the bottom portion of each side end flap remaining attached to the carton to provide structural integrity to the carton;
- d. a means for closing any end of the carton that is not an exiting end; and
- 20 e. a racetrack handle in the top panel extending transversely towards the side panel.

8. The carton of Claim 7 in which the tear line in the top panel extends away from the exiting end for a portion of its extension across the top panel to form a finger flap foldably attached to the dispenser to facilitate commencing opening the dispenser in the top panel
25 between the first and second containers from the exiting end.

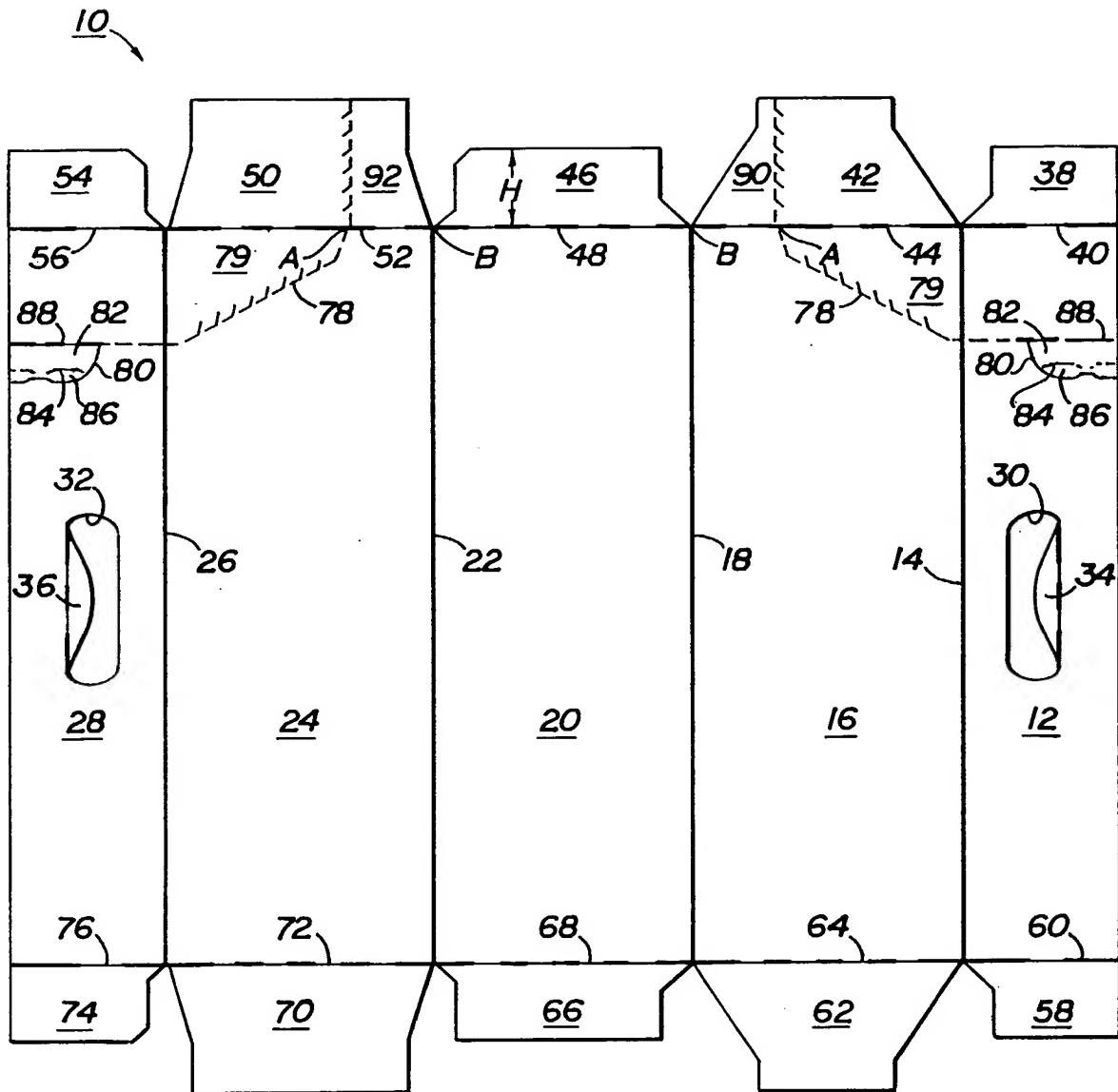
9. The carton of Claim 7 in which glue is used to close both ends of the carton.
10. The carton of Claim 7 in which there is only one exiting end.
11. The carton of Claim 7 in which both ends are exiting ends.
12. A dispenser for cartons for carrying a plurality of containers wherein said
30 carton has two ends, at least one of which is an exiting end capable of permitting containers to exit the carton one at a time, the dispenser being a part of a carton comprising:

a. a bottom panel, a top panel and foldably attached adjoining side panels, said top panel having a racetrack handle in the top panel extending transversely toward the side panels;

b. said exiting end having a bottom end flap having a height and which is attached by a fold line to the bottom panel, a top end flap foldably attached to the top panel, a side end flap foldably attached to each side panel, and means for attaching said flaps together to close the exiting end of the carton; and

c. means for closing any non-exiting end of the carton wherein said dispenser is formed in the exiting end of the carton, said dispenser having a top end flap formed from a portion of the top panel adjacent the exiting end, a side end flap formed from a portion of each side panel adjacent the exiting end, said side end flap having an edge that extends at an angle towards the exiting end to the attachment of said side panel with a side end flap at a distance greater from the top panel than the bottom panel when the dispenser is a part of the carton, and when the dispenser is open it remains attached to the carton by a fold line through each side end flap so that a portion of each side end flap adjacent to the bottom end flap remains attached to the carton to provide structural integrity to the carton, said dispenser forming a basket for catching containers exiting the carton.

13. The dispenser of Claim 12 which has a finger flap foldably attached to the top flap.



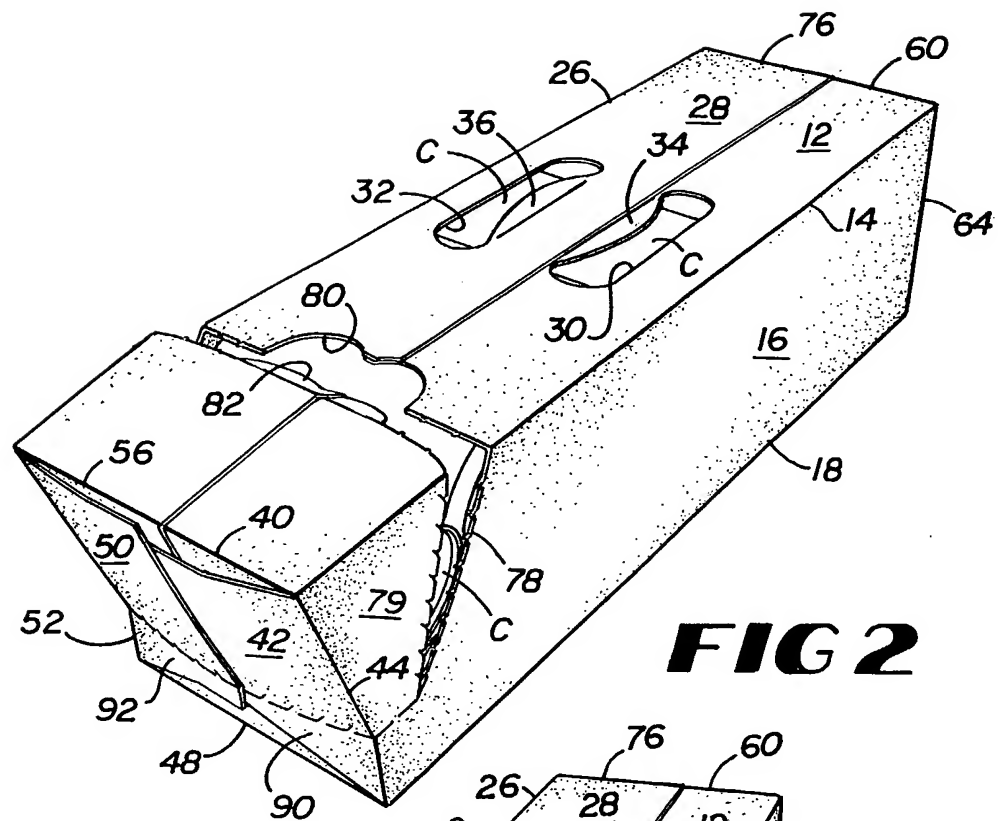


FIG 2

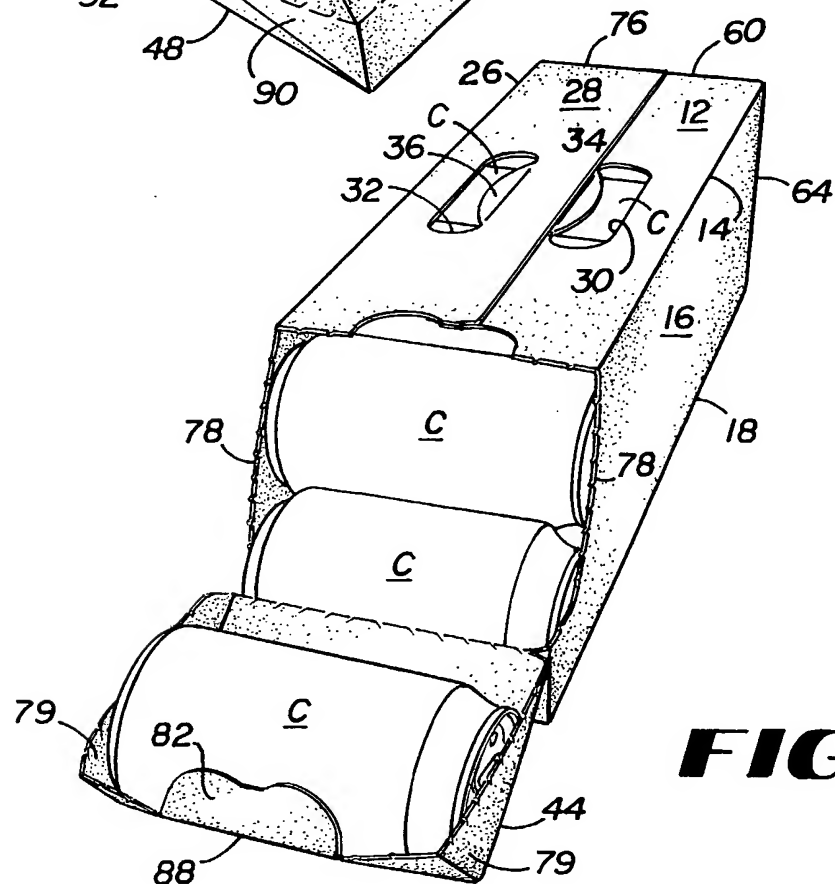


FIG 3

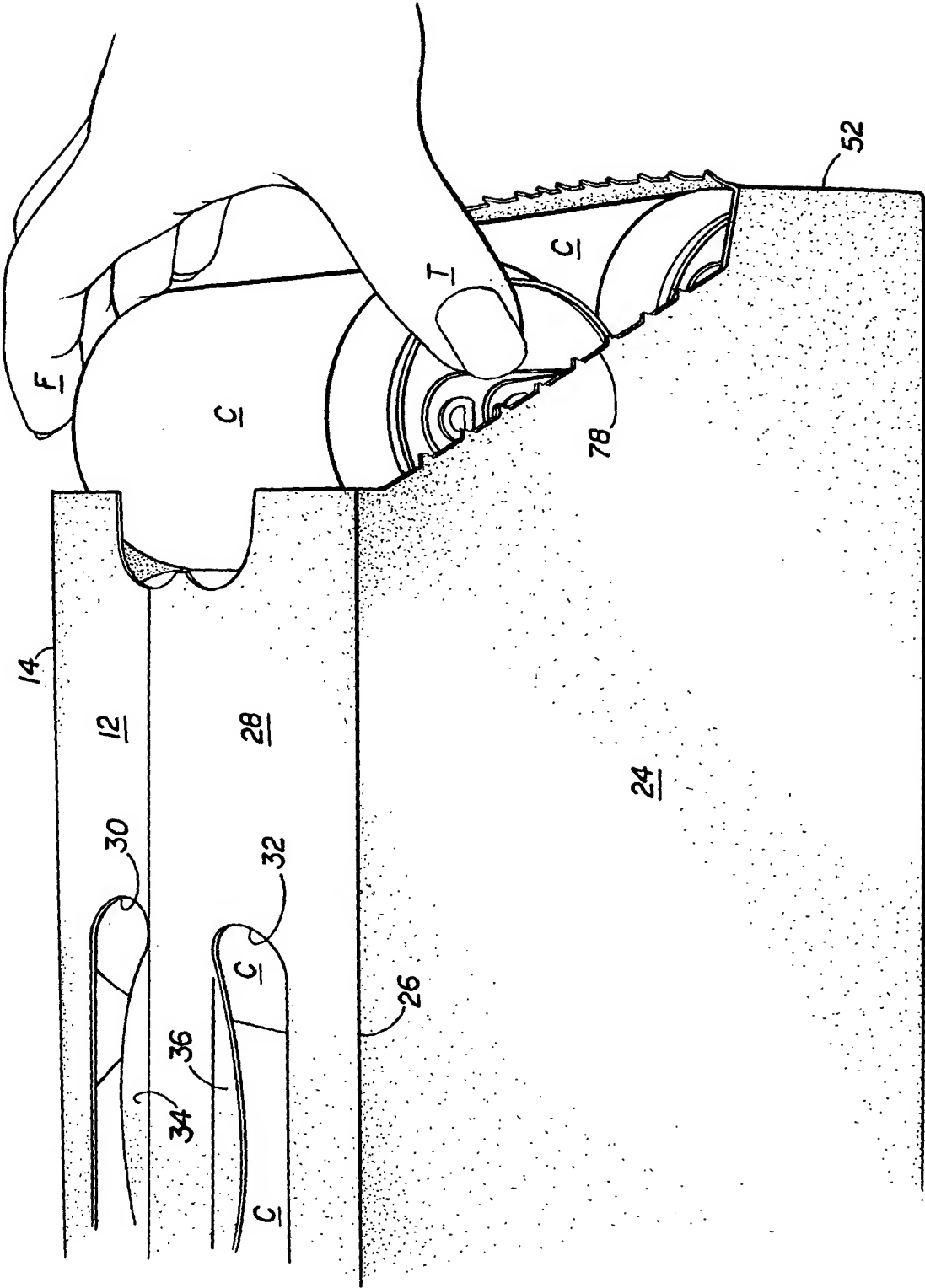
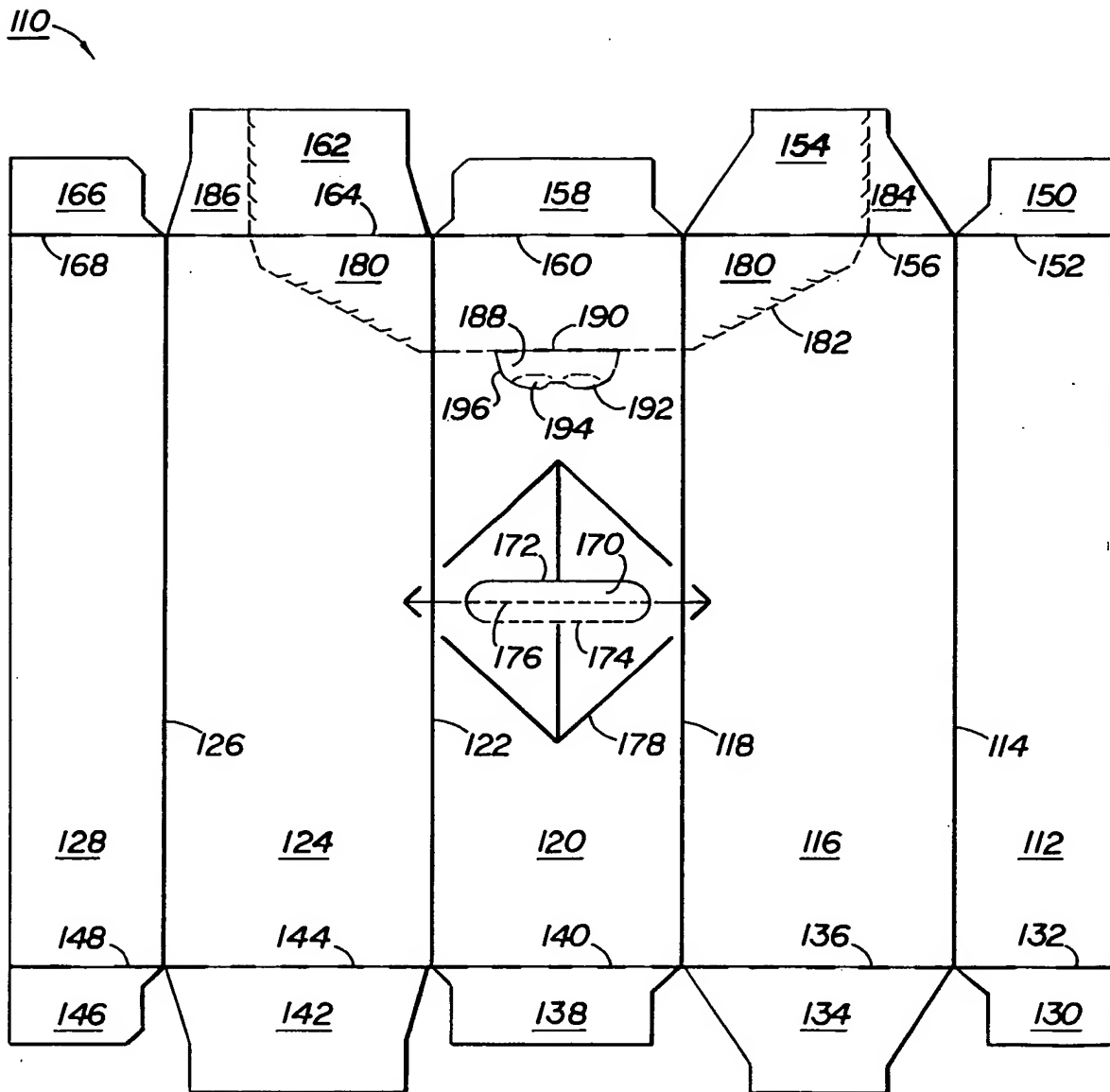
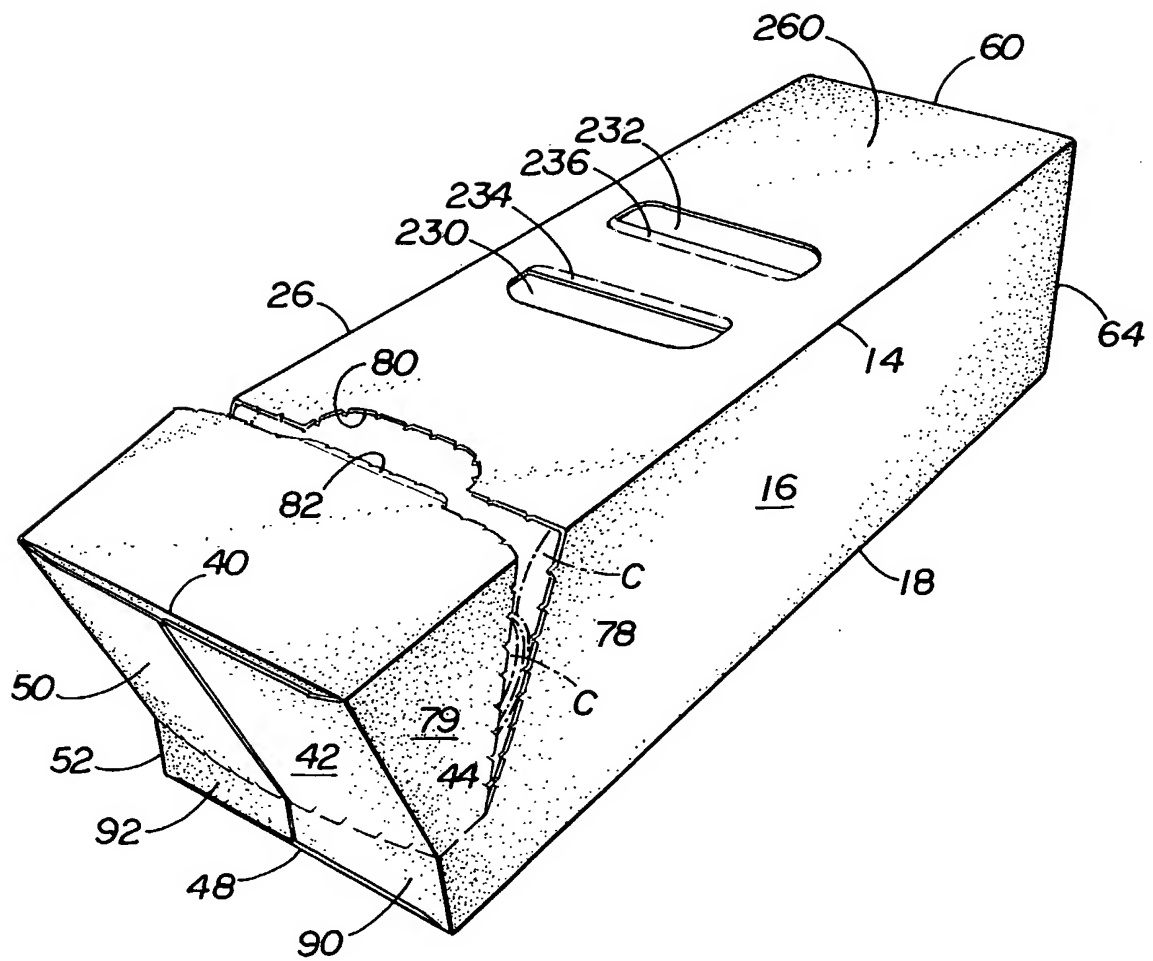


FIG 4

**FIG 5**

**FIG 6**

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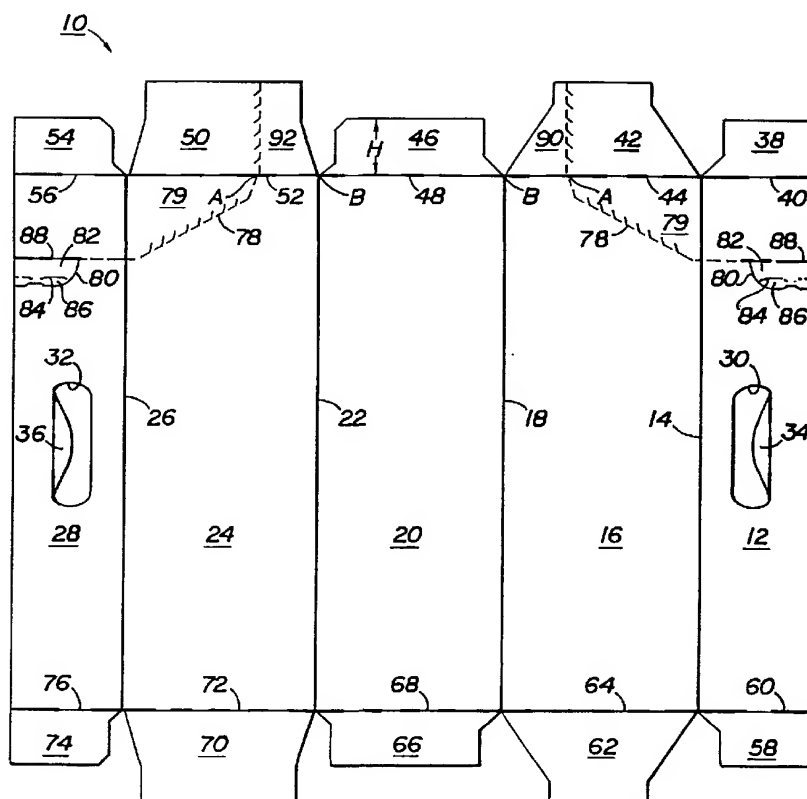
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(54) Title: **CARTON WITH IMPROVED DISPENSER AND HANDLE**



(57) Abstract: A carton with an improved dispenser (79) at one end of the carton which preserves the integrity of the carton when the carton is opened by permitting a bottom end flap (66) attached to the bottom panel (20) to remain in place and also a portion of each side end flap (42, 50) that is adjacent to the bottom end flap (66). This dispenser (79) may also provide a safety net for the first container (C) that is automatically dispensed when the carton is opened. This carton also has a unique racetrack handle (30, 32).



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European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US02/14426

A. CLASSIFICATION OF SUBJECT MATTER IPC(7) : A47K 10/24; B65D 5/00 US CL : 221/45; 229/121 According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) U.S. : 221/45, 53, 82, 303; 229/121, 122.1, 194 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 3,364,509 (HOLLEY, IR ET AL) 21 December 1982 (21.12.82) see the entire document	1-13
A	US 3,265,283 (FARQUHAR) 09 August 1966 (09.08.66) see the entire document	1-13
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> See patent family annex.		
* Special categories of cited documents:		
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"E"	earlier application or patent published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
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"O"	document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P"	document published prior to the international filing date but later than the priority date claimed	
Date of the actual completion of the international search		Date of mailing of the international search report
Name and mailing address of the ISA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. (703)305-3230		Authorized officer <i>Kenneth Noland</i> Kenneth Noland Telephone No. (703)308-3200

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Continuation of Item 4 of the first sheet:

The title is too long under PCT Rule 4.3. A new title is as follows: **CARTON WITH IMPROVED DISPENSER AND HANDLE**